

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 4-8 and 10-12 are pending in this application. Claims 1 and 8 are amended, and Claims 2 and 9 are canceled without prejudice or disclaimer. No new matter is added.

In the outstanding Office Action, Claims 1, 2, 4, 5 and 8-10 were rejected under 35 U.S.C. §103(a) as unpatentable over JP 2001-022499 (Suzuki) in view of JP 2004-157677 (Satoshi); and Claims 6, 7 and 11-14 were rejected under 35 U.S.C. §103(a) as unpatentable over Suzuki in view of U.S. 5,017,770 (Sigalov).

Claim 1 recites:

A force feedback apparatus comprising:
a jetting unit that includes nozzles and that is configured to control a jet amount or a jet direction of gas or liquid jetted from the nozzles; and
a jet control unit configured to control the jet amount or the jet direction of the gas or the liquid according to a position or an orientation of a receiver that has a hemispheric shape and that is configured to receive a pressure by the gas or the liquid jetted from the jetting unit so as to provide force feedback to an operator, wherein
the position or the orientation of the receiver is measured by a receiver measurement unit,
the nozzles are arranged in equilateral triangles in the jetting unit, and when the receiver has a concave shape of a diameter D, intervals for placing each of the nozzles in the jetting unit are set such that ***at least one nozzle exists within a region having a diameter of $0.8 \times D$*** ,
the receiver is separated from a surface on which the nozzles that form the equilateral triangles are arranged, and
the gas or the liquid is jetted towards the receiver from the nozzles that form the equilateral triangles.
[Emphasis added].

It is respectfully submitted the asserted combination of Satoshi and Suzuki fails to disclose or reasonably suggest the features recited in Claim 1.

As previously presented in Satoshi, each nozzle (11, 12, 13) jets the air toward the receiver 14, which is placed at the center of the nozzles ***in the same plane as the nozzles***. This

is contrary to the claimed invention as well as to the teachings of Suzuki. Specifically, Suzuki describes jetting toward a receiver, which is separated from a surface of jetting nozzles.

The Office Action cites *In re Keller* in item 4, alleging the previously filed arguments merely argued against the references individually. Further to this issue, the Office Action states:

The use of the prior art of record (**Satoshi et al**) is **NOT** to show the placement of the receiving unit nor the direction of the jetted air flow, however, **Satoshi et al** is used in order to show (disclose) the air getting nozzles could be arranged in a particular configuration (i.e. **equilateral triangular shape**). Further more since **Satoshi et al** discloses that arranging the air jet nozzles in **equilateral triangular shape** would help in minimizing the effect of interference coming out of the jets, Therefore on of ordinary skilled person in the art would modify the teaching of Suzuki's air jet nozzle unit to be arranged in a **equilateral triangular shape so that it would have a better haptic feed-back to the user without any (or reduced) interference from the air jets.**¹

Applicant respectfully disagrees. The Office's conclusion is not based on the teachings of the art of record. Further, the Office's conclusion does not take into account the entirety of the teachings of the art of record.

As stated in MPEP §2141.02, the claimed invention *as a whole* must be considered. Similarly, the *prior art must also be considered in its entirety*.

As noted above, Satoshi describes nozzles 11-13 as jetting air towards a receiver 14 placed at the center of the nozzles *in the same plane as the nozzles*. In other words, the nozzles 11-13 are arranged to jet air *towards each other*.² Accordingly, as identified in item 3 (page 4) and item 6 (page 7) of the Office Action, the equilateral triangular arrangement is used in Satoshi to reduce interference from the nozzles jetting air at each other. Accordingly, in order to benefit from the advantage described in Satoshi (i.e. reduced interference), the nozzles *must jet air toward each other*.

¹ Office Action, item 3.

² Satoshi, Figs. 3 and 4.

However, the operational characteristic required by Satoshi to benefit from the equilateral arrangement is not shared by Suzuki. Specifically, Suzuki describes a receiver positioned above nozzles,³ where the nozzles *are not* arranged *around* a receiver (as in Satoshi). In other words, in Suzuki, *the nozzles do not jet air towards each other*.

Accordingly, it is entirely unclear how modifying the nozzles in Suzuki to have an equilateral arrangement can provide the alleged benefit of reducing interference. Since this is the rationale relied upon in the Office Action for combining reference teachings, it is respectfully submitted that the Office's position should either be clarified to address the inconsistency between the operation characteristics of Satoshi and Suzuki or withdrawn. Otherwise, the rejection fails to establish a *prima facie* case of obviousness and should be withdrawn.

Nonetheless, it is respectfully submitted the art of record fails to disclose or reasonably suggest the features previously recited in Claim 2 (now canceled and incorporated into Claim 1). Namely, it is respectfully submitted the art of record fails to disclose or reasonably suggest "the receiver has a concave shape of a diameter D, intervals for placing each of the nozzles in the jetting unit are set such that *at least one nozzle exists within a region having a diameter of $0.8 \times D$* ," as recited in Claim 1.

In rejecting this feature, the Office Action merely alleges Suzuki implicitly discloses in paragraphs 12 and 81 that the receiving unit can have a different shape.⁴ However, neither the Office Action nor the references establish a relationship between an interval of nozzle placement and a diameter of a receiver, as required by Claim 1. As a result of this claimed relationship in addition to the equilateral triangle arrangement, even when the receiver moves in any direction, force feedback can be provided smoothly without a sudden change in force.

³ Suzuki, Fig. 7.

⁴ Office Action, page 7.

None of the art of record addresses these features and none of the art of record provides such a benefit.

Accordingly, for at least the reasons noted above, it is respectfully submitted the rejection(s) are deficient and should be withdrawn. Further, it is respectfully submitted Claim 1 (and any claim depending therefrom) is allowable over the art of record. Although directed to a different statutory class and varying in scope, it is respectfully submitted Claim 8 (and any claim depending therefrom) is also allowable over the art of record for substantially similar reasons as noted above regarding Claim 1.


Consequently, in view of the present amendment and in light of the above comments, it is respectfully submitted the outstanding grounds for rejection have been overcome and the pending claims are in condition for allowance. Should the examiner disagree, the examiner is encouraged to contact the undersigned to resolve any remaining issues. Otherwise, a timely Notice of Allowance is respectfully requested.

Respectfully submitted,

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